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Report Template Version: V04

Report Template Revision Date: 2018-07-06

RF Exposure Evaluation Report

Report No. : CQASZ20201001200E-02
Applicant: Zhaoqing Grandehome sanitary Ware co,Ltd.
Address of Applicant: No.30 industrial Avenue, Fuxi Industrial Park, Dasha Town, Sihui City
Equipment Under Test (EUT):
EUT Name: m18 bluetooth decoder module
Mode No.: M18
Brand Name: GRANDE HOME
FCC ID: 2AXTN-LDWYS112
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2020-10-12
Date of Test: 2020-10-12 to 2020-10-27
Date of Issue: 2020-10-27
Test Result : PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Tested By:

Martin Lee

(Martin Lee)

Reviewed By:

Sheek, Luo

(Sheek Luo)

Approved By:

Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20201001200E-02	Rev.01	Initial report	2020-10-27

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3 General Information

3.1 Client Information

Applicant:	Zhaoqing Grandehome sanitary Ware co,Ltd.
Address of Applicant:	No.30 industrial Avenue, Fuxi Industrial Park, Dasha Town, Sihui City
Manufacturer:	Zhaoqing Grandehome sanitary Ware co,Ltd.
Address of Manufacturer:	No.30 industrial Avenue, Fuxi Industrial Park, Dasha Town, Sihui City
Factory:	Zhaoqing Grandehome sanitary Ware co,Ltd.
Address of Factory:	No.30 industrial Avenue, Fuxi Industrial Park, Dasha Town, Sihui City

3.2 General Description of EUT

Product Name:	m18 bluetooth decoder module
Model No.:	M18
Trade Mark:	GRANDE HOME
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.2
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location
Test Software of EUT:	FCC Assist 1.0.1.2 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	-1.0dBi
EUT Power Supply:	120V 60Hz

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{[\sqrt{f(\text{GHz})}]^2} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where} \right]$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

For BT

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.270	1.5±1	2.5	1.778
Middle(2441MHz)	3.410	2.5±1	3.5	2.239
Highest(2480MHz)	4.350	3.5±1	4.5	2.818
$\pi/4$ DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.890	2.0±1	3.0	1.995
Middle(2441MHz)	4.030	3.5±1	4.5	2.818
Highest(2480MHz)	4.970	4.0±1	5.0	3.162

Worst case: $\pi/4$ DQPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.890	2.0±1	3.0	1.995	0.618	3.0
Middle (2441MHz)	4.030	3.5±1	4.5	2.818	0.881	
Highest (2480MHz)	4.970	4.0±1	5.0	3.162	0.996	
Conclusion: the calculated value ≤ 3.0 , SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20201001200E-01.